Request for ITB/RFP Number

In order to serve you better, we need the following information when requesting an Invitation to Bid (ITFB) or Request for Proposal (RFP) number from Purchasing. E-mail this form to Purchasing, and we will advise Bid/Proposal number.

An RFP for "Other than Professional Services" must be **approved** by the City Manager (over $50,000) or Purchasing Manager (up to $50,000) before a number is assigned.

If there will be an "evaluation team", please supply a list of all team members.

Title/Name of Bid/RFP		TRUCK CHASSIS MOUNTED 300 GALLON AIR ATOMIZING APPLICATION STRIPING UNIT (Paint Striping Truck)
Commodity Code(s)		97514
Bid # or RFP #		
What is Bid/RFP for? (Services/Goods/Products)		Product
Department		Fleet Management
Estimated Open Date		
Will there be a Pre-Bid/Proposal Meeting? (Y/N) When, where and time		Yes
Department Contact		Demond Hammond –Fleet or Gary Bowman-Transportation
Phone Number		853-5461 or 853-5293
When is "final" draft of Bid/RFP expected?		Finalized
Will ad be needed?		Yes
Available Funding for the project **list the account number to be used**		017-440-2642-9010
Estimated cost of BID/RFP		***Check One Below***
	$0K - $30K	
	$30K - $50K	
	$50K - 100K	
	$100K Plus	x
Will Bid or Performance Bond be required? (Y/N)		N
List all attachments, exhibits, or additional information that will be included with this Bid/RFP		Specification
Will a list of prospective bidders/proposers be sent to Purchasing? (Y/N)		yes

REV 7/28/04

ROANOKE

CITY OF ROANOKE

TECHNICAL SPECIFICATIONS
FOR
TRUCK CHASSIS MOUNTED 300 GALLON AIR ATOMIZING APPLICATION STRIPING UNIT

SUMMARY:

1. GENERAL PROVISIONS
2. CHASSIS
3. PLATFORM
4. PAINT & GLASS SUPPLY
5. PAINT APPLICATION SYSTEM
6. SPRAY EQUIPMENT
7. CARRIAGE ASSEMBLIES
8. AIR COMPRESSOR
9. GUIDANCE SYSTEM
10. TRAFFIC CONTROL LIGHTING
11. CONTROL & ELECTRICAL SYSTEM
12. SKIPLINE SYSTEM
13. TECHNICAL SERVICES
14. OPTIONAL COMPONENTS

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SECTION 1
GENERAL PROVISIONS

It is the intent and purpose of this specification to describe a truck-mounted self-contained air atomizing application-striping machine. The machine shall apply reflectorized lines utilizing a waterbase (latex) or low VOC traffic paint and glass beads. The equipment must be capable of applying this material at ambient temperatures of 50 degrees Fahrenheit on clean, dry pavement. The machine shall be capable of applying (2) four-inch wide lines from the left side of the unit and one (1) on the right, in either a solid or skip pattern, or combination of these patterns.

The machine shall operate in a range of four to twelve M.P.H. All truck parts and materials shall conform to the truck manufacturers' recommendations and the applicable Federal S.A.E. Standards.

MATERIALS AND WORKMANSHIP:

All equipment furnished and the parts thereof shall be of the manufacturer's latest listed and published stock models, which meet all the applicable requirements of the specification.

GUARANTEE:

The machine shall be guaranteed against defective materials and workmanship for a period of 365 days from the in-service date, if properly serviced, maintained and operated under normal conditions according to the manufacturer's instructions.

All guarantee claims (parts) will be repaired or replaced by the line striper manufacturer. All replacement parts shall be shipped to the user within one working day, if the parts are available. The vendor shall agree to sell all parts needed for the operating life of the equipment, which shall be a minimum of ten years.

The manufacturer will assume no field expense for service or parts unless authorization is granted in advance.

The manufacturer will assume no liability for normal maintenance items, consumable or damage resulting from neglect or abuse of the equipment.

INSURANCE REQUIREMENTS:

Bidders shall provide with their bid, a Certificate of Insurance that shows that they maintain at least five million dollars ($5,000,000.00) in product liability and completed operations insurance. The coverage shall be written by an admitted and approved carrier licensed in the state.

FINISH:

The complete machine and all components, including tanks, compressor, etc., shall have the following minimum protective coatings applied: one prime coat and one finish coat of paint, unless chromium plated or galvanized. The prime coat material shall be specifically

compounded for the respective metals to which it is applied. A quart of touch up paint shall be supplied with the unit.

Finish Coat Color - White, PPG Delta Grade High Solids Urethane with Enhancer, or equal, unless otherwise stated.

All wooden components shall receive one coat of primer sealer and one coat of sealer enamel.

All fasteners shall be chromium or cadmium plated.

SECTION 2
CHASSIS

CHASSIS:

The chassis shall be a new, current model year (No Exceptions) automotive chassis assembled to meet the specific requirements of this specification.

Manufacturer	GMC or equivalent
Model	F7B042 or equivalent
Cab Type	Tilt Cab
Wheelbase	152 Inches (Approx.)
GVWR	33,000 Lbs
Frame	12.0 Section Modulus, 80,000 psi (Minimum)
Front Axle	12,000 Lbs
Rear Axle	21,000 Lbs
Tires	To Match Axle GVW.
Wheels	8.25 x 22.5 10 hole steel disc wheels.
Engine	7.8L Duramax Diesel 7800, 250 GHP @ 2200 RPM or equivalent
Transmission	Allison 3000 RDS, 6-speed Automatic or equivalent
Brakes	Full Air Brakes with Heated Air Dryer
Steering	Power, ZF Variable Ratio, Integral
Electrical System	160 amp alternator. 12 volt batteries. 1500 CCA
Fuel Tank	50 gallons
Cab Features	Recirculating heater and defroster. Air conditioning Driver air ride suspension seat with seat belts.

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	AM/FM radio. Tinted Glass Two speed wipers with washers L.H. and R.H. cab entry assist handles Dual sun visors - Dome lamp. Westcoast mirrors left and right (16" x 7" min) Convex mirrors (8" min)
Lighting	Emergency 4-way Flasher Cab Clearance Lights - (5) Each
Instrumentation	Manufacturer's standard, to include a tachometer, hourmeter, fuel gauge, speedometer, oil pressure gauge, temperature gauge and a voltmeter or ammeter. Engine shut down system, high water temperature, and low oil pressure.
Back-Up Alarm	Adjust automatically to surrounding noise level.
Color	White

When fully laden with striping material, the chassis manufacturer's GVW rating shall not be exceeded or the unit may be rejected. The unit shall meet all current OSHA standards for noise levels at platform level and the operator locations.

AUXILIARY EQUIPMENT:

The following auxiliary equipment shall be provided:

- Mud flaps, front and rear
- Two 20 Lb. Ansul or approved equal dry powder fire extinguishers
- Piped ¼ inch air supply for a hand take-off, mounted at the right hand corner of the platform with 25 ft. hose and retractable hose reel

DIGITAL SPEED METER SYSTEM:

A digital speed meter shall be included on the striping unit that will allow the truck operator to read his speed in three digits to aid him in maintaining a desired speed.

The system shall include a digital control meter having three 1/2 inch digits, readable without error from approximately 20 feet, with the last digit reading 1/10 MPH and having an accuracy of 1/2% for full scale.

The signal source shall be a logic level pulsing unit driven by a pulse generator mounted off the driveline. The 12 volt DC power for the system shall be provided by the truck alternator and be separately fused.

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SECTION 3
PLATFORM

PLATFORM:

The bed shall not exceed 96 inches total width, including all projections, and shall be at least 204 inches long. The platform framing shall be constructed of 4 inch structural channel cross members and 6 inch structural longitudinal members to support all required equipment mounted on it. The spacing of the cross members shall not exceed 18 inches.

The platform shall be supported by a minimum of eight (8) equally spaced risers. The risers shall be manufactured into a built-in structural channel and shall allow approximately 8 inch opening from the top of the chassis rail to the bottom of the platform. This opening will facilitate accessibility to material and control plumbing in the area located between the chassis rails. The risers shall be welded to the bottom of the platform and fastened to the chassis rails vertical flange by at least (2) 5/8 inch diameter, grade #8 bolts, in order to transfer the loading on the rails, a soft aluminum spacing shall be placed between the risers and the chassis rails top flange. Provisions shall be made to permanently secure these spacers in their locations.

The platform shall have non-skid, 1/8 inch medium pattern steel safety tread surface. Ladders with skid resistant steps shall be furnished on both sides.

RAILING:

A steel railing shall be installed around the platform where necessary, and bolted in place. Railing vertical uprights shall be constructed of 1¼" square tubing. The height of the railing shall be 42 inches with a 21" high cross member. Corners shall be rounded for operator safety.

REAR BUMPER:

The rear bumper shall have a minimum 8" width and extended across the rear of the truck platform. It shall be at least 15" above the road surface and have a safety plate surface. The bumper support shall be at least 4" x 5.4 channel steel on both sides, and the bumper should be of 1/8" thick safety tread plate steel channel with welded end sections forming a strong box section. A set of skid resistant steps shall provide access to the operator stations from the bumper. These steps shall be a minimum of 24 inches wide.

TOOL BOX:

Two metal weatherproof toolboxes of adequate size shall be supplied and mounted under the platform. Each box shall have a full face, bottom hinged door with a latch with integral lock. Any special tools needed for adjustments or disassembly of the various machine components shall be furnished in these boxes.

REAR SHELTER:

An aluminum and tinted safety glass housing shall be supplied to provide protection from the weather for the operators. Windows and doors shall be provided for easy viewing of the gun

carriages and access to the remainder of the platform. Interior enclosure lighting shall be provided that will provide sufficient lighting of the controls and gauges for nighttime striping operations.

The construction shall be as follows:

Insulation - Rear shelter shall be insulated with minimum 1" thick foam insulation, covered with a 14% perforate 32% vinyl covering. This insulation shall be attached to the shelter walls by means of an industrial grade adhesive to secure the insulation to the shelter's inner walls.

Air Conditioning/Heater Unit - The enclosure shall be equipped with a wall mounted combination air conditioner and hot water heater with circulating fan. Cooling BTU's of air conditioner shall not be less that 33,000 (no exceptions).

Frame - 1-1/2" aluminum square tubing, 1/8" thick, welded and bolted structure.

Roof - 1-1/2" aluminum square tubing braces covered with 11 gauge aluminum sheeting with a sufficient interior head spacing. Roof panels shall be insulated with 1" thick foam insulation, with a 14% perforate 32% vinyl covering.

Sides - A horizontal tinted safety glass glazed sliding window and a glazed tinted safety glass panel bottom portion shall be provided on each side. The sliding windows shall be 29.5" X 24" and the bottom portions tinted safety glass panel shall be custom sizes. In addition to the above side windows, a removable "bubble" type window shall be installed on each side of the shelter. This "bubble" window shall project out approximately 6" allowing the operator to view the spray guns.

Front - One aluminum hinged door, 20" x 68", shall be provided on the front right side. The door shall hinge in such a manner as not to obstruct the operator's mounting or dismounting from the deck area. A horizontal sliding window shall be provided in the top portion of the panel beside the door. Aluminum sheeting, 11 gauge, shall cover the bottom portion.

Back - One aluminum hinged door, 20" x 68", shall be provided in the center of the rear panel. In the upper portions of the panel, two windows shall be placed on either side of the door. The balance of the bottom of the area shall be covered with eleven gauge aluminum sheeting behind the operators.

All four exterior corners shall be reinforced with a 1/8" aluminum polished tread plate for the full height of the shelter. The entire shelter shall be bolted to the deck, enclosing the operators and the controls.

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SECTION 4
PAINT AND GLASS SUPPLY

PAINT SUPPLY:

The marking machine shall be equipped with two stainless steel A.S.M.E. certified pressure vessels for storage of paint. The yellow vessel shall have a capacity of 150 U.S. gallons. The white vessel shall have a capacity of 150 U.S. gallons. Each tank shall be equipped with a 0-160 psi gauge, safety valve, bleed-off valve and shut-off valve, arranged so that air pressure may be maintained on the tank. The tank construction shall include a top stainless steel lid opening of not less than 24 inches in diameter with 4 inch fill port. Air motor driven agitators shall be included for each tank with stainless steel shaft and paddles and speed controls mounted at the operator position.

A paint application monitoring system shall be incorporated into both the white and yellow systems to allow monitoring of remaining paint levels in the tanks. An audible alarm and light shall activate at the operators station when tank level of near empty is reached. Dipstick and tank float type of monitoring systems are not acceptable.

Two (2) air operated diaphragm type, Wilden T-8 or equal, pumps shall be furnished to transfer paint at the rate of 25 GPM from the storage containers to the paint tanks on the striping unit.

The pumps shall be equipped with Teflon balls and Teflon diaphragms.

The pump construction shall have stainless steel wetted parts. Two 15-foot sections of 2-inch diameter suction hose and a strainer assembly shall (one for each paint color).

Provisions shall be provided to clean the pumps by re-circulating solvent from a solvent bucket.

GLASS SUPPLY:

A pressurized tank having a capacity of 1,800 Lb. of glass spheres is to be provided. This tank is to be of all steel A.S.M.E. approved construction with a top opening of not less than 14" in diameter. A 0-160 psi pressure gauge, pressure regulator, 100 psi pressure relief valve, and auto evacuating moisture trap are to be included and mounted on the tank.

A vacuum glass fill unit having a minimum loading capacity of 200 pounds of glass beads per minute is to be supplied. By creating a vacuum in the glass tank, glass is to be drawn into the tank without contaminating the vacuum unit. The speed of the unit is to be controlled and a muffler is to assure quite operation at all times.

The glass filling system on this unit shall include a 15 foot long, 2 inch I.D. fill hose with all the necessary fittings, including quick disconnect fittings and a new, unused 55 gallon drum with a combination bag splitter and strainer top.

The glass spheres are to be conveyed under pressure to glass sphere dispensing guns through rubber pressure hoses. A finned tube-type air cooler and moisture separator are to be supplied to remove moisture from air used to operate the glass system.

The carriage glass manifolds shall be mounted in a manner that does not interfere with the operation/maintenance of the paint and glass guns.

SOLVENT SYSTEM:

An air-operated, solvent gun cleaning system shall be installed on the striping machine. It shall consist of 20 gallon A.S.M.E. stainless steel pressure tank with safety valve and valves and piping necessary to introduce solvent into each paint line.

All piping to be solvent resistant type. The tank construction shall be with a 4 inch threaded top opening and a full steel skirt support.

SOLVENT DUSTING GUN:

A solvent dusting gun shall be provided with 25 feet of hose for cleaning outriggers, surface of spray guns and surrounding areas after striping operations

SECTION 5
PAINT APPLICATION SYSTEM

PAINT APPLICATION SYSTEM:

The unit shall have a paint supply designed for two-color application and appropriate cross-plumbing to allow single color loading of both tanks and providing, at the back of the truck, both colors to each paint gun. The material supply shall be so arranged as to permit the simultaneous operation of one and/or two spray guns on the left carriage and one spray gun on the right carriage for berm or edge striping. A stainless steel strainer shall be inserted in each system. The strainer shall be cylindrical in design and made from a #16 gauge perforated stainless steel material. The perforation shall be 1/8 inch in diameter and on approximately 3/16 inch centers (33 holes per square inch). No wire strainers are acceptable. The strainer shall be readily accessible and where necessary, valving shall be provided to isolate the strainer from the feed line for cleaning

PAINT PLUMBING AND HOSES:

Air piping, tubing, or hosing used on the vehicle shall be firmly attached to frame or bed except where flexible conductors are required for proper operation or service

Rigid paint lines and fittings in the low pressure fill and charging systems shall be at least 2" stainless steel pipe, and all valves in these lines shall be stainless steel ball type, full flow, with Teflon seals.

All material conductors other than pipe shall be non-metallic, paint and solvent resistant, Teflon lined, (no exceptions) flexible hose. They shall be capable of withstanding the respective pressures produced in each system and shall not be less than ½ inch dia. The paint hoses to

the guns shall be convoluted Teflon designed to meet working pressure requirements of at least 200 psi.

The pumps, hoses fittings, valves and all components that are in contact with the marking materials shall be stainless steel.

SECTION 6
SPRAY EQUIPMENT

PAINT SPRAY GUNS:

The guns shall be Kamber Model 38-15 (no substitutions permitted), capable of applying a 4" wide line at 15 mils at 12 MPH maximum striping speed. The bidder must have available for demonstration at the customer's location, the gun proposed under this section. The guns must carry a minimum warranty of one year.

The paint gun shall be a high quality pneumatically actuated and internally atomizing spray gun. It must be capable of spraying all standard cold and hot applied fast dry paints; oil base, chlorinated rubber, waterbase latex paint, and premix.

The main gun body shall be machined from a solid block, not exhibiting any seams or connections. All guns wetted components must be manufactured from stainless steel.

In order to adapt the gun to waterbase paint applications it shall be easily convertible, from a bleeder to a non-bleeder configuration and reverse the process by either removing or replacing a ball check in the atomizing gun port. The gun needle packing nut must be adjustable thus enabling the operation to compress the packings to ensure continuous sealing of the needle through the wear period.

The lower gun assembly shall contain a spring loaded Teflon packing and be of the double-barrel design comprising of a separate fluid nozzle, air nozzle, and exterior nozzle to produce a well defined 4" to 9" wide painted line with an even paint distribution.

Each spray gun shall have as an integral part, a gun shroud which shall produce sharp line definition. The shroud shall consist of a round collar that will fit on the guns air nozzle retainer ring and be an open channel type shroud to facilitate cleaning without removal.

For better durability and life the following components; exterior nozzle and fluid nozzle shall have a minimum surface hardness of 50 as measured on a Rockwell "B" scale. The needle shall be constructed entirely of stainless steel to prevent rusting.

Gun material inlet shall be constructed at a 25° angle to allow maximum material flow.

GLASS SPHERE GUNS:

There shall be installed pneumatically actuated glass sphere guns, high capacity (35 lbs per minute at 40-60 psi tank pressure), air atomized glass guns, Kamber Model 90HO (no substitutions permitted) designed to remove bead pulsation by fluidizing bead flow out of the gun nozzle. Gun outlet shall be fitted with a closed spooned glass deflector with adjustable side curtains to insure precise adjustment of beads on the paint line, thus minimizing waste of glass outside the paint line. The closed spoon material deflector must also be equipped with a hardened steel replaceable insert (either circular or rectangular shaped) to prevent wear of the deflector at the material outlet.

The glass guns atomizing air by-pass (coupling tube assembly) must be constructed of brass (plastic will not be acceptable). This assembly must also house a filter screen to prevent glass beads form being trapped in the atomizing air system.

In order to prevent glass from migrating into the air operation chamber, the gun shall employ a dual sealing system, this shall consist of a wiper seal, backed up by a needle "O" ring. The gun must also be equipped with internal stainless steel springs to prevent rusting due to condensation within the gun.

All gun inlets must be threaded (not soldered) to allow replacement of such parts due to wear or other damage.

The glass guns must be equipped with an interchangeable material tip system. This system must offer six different tips sized from 5mm to 10mm tip orifice dimensions to provide the operator an infinite range of application speeds. Tips must be constructed of hardened steel to prevent excess wear.

GLASS SENSOR SYSTEM:

There shall be installed a sensor system to detect the flow of glass from the glass guns. This system shall signal the operators when there is no glass flow from the guns, while the unit is in operation. In order to detect and identify which gun may be malfunctioning, and/or signal the operator when to fill the glass system, a sensor shall be installed at each glass gun orifice.

AIR NOZZLES:

Each carriage shall also have a multi-channel flat jet nozzle, mounted directly in front of each spray gun, to remove dirt and debris from the road surface prior to the application of paint and glass beads. The "on/off" air supply to these nozzles shall be controlled by means of a valve actuated on the operator console. Each air nozzle shall have a manual adjustment air flow control.

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SECTION 7
CARRIAGE ASSEMBLIES

SPRAY GUN CARRIAGE ASSEMBLY:

Two gun carriage assemblies shall be supplied, mounted behind the vehicle's rear wheels, to support and align the spray guns.

The main carriage, mounted on the left side of the vehicle, shall have provisions for attaching 3 paint spray guns (1-white and 2- yellow), 3 glass sphere guns and 3 air duster guns.

All glass spray guns shall be mounted backwards for better distribution of material on the painted line.

LEFT CARRIAGE			BERM CARRIAGE		
A	A	A	A	A	AIR BLOWERS
Y	W	Y	W	W	PAINT GUNS
G	G	G	G	G	GLASS GUNS

This carriage shall have two separate wheels mounted on individual casters in front of the oscillating carriage and shall support the carriage and maintain it at a fixed height from the road surface. A parallel system shall connect the carriage to a cross slide and maintain the spray guns normal to the road surface at all times.

One pneumatic lift cylinder controlled from the operator's position, shall be used to raise the carriage and a safety chain to support it during transporting.

The cross slide supporting the carriages shall allow the carriages to be positioned for transport within the width of the vehicle's platform, and permit its use anywhere from this location outward for a distance of 4 feet. The slide mechanism shall consist of a square tube within a square tube telescoping design with adjustable UHMW, self-lubricating material bearing areas. The outer tubing shall contain a two channel bearing mater configuration, mounted on a retainer, which will permit adjustment as the material wears. The inner slide will have four pads of the UHMW material bolted and shimmed to its' innermost slide section. The pads shall allow shimming of the pads, as the pads wear, without disassembly of the slide.

The second spray gun carriage shall be provided and mounted along the right side of the striping unit approximately on the same lateral axis as the main carriage to align and support 1 paint spray gun (white), 1 glass sphere gun and 1 air duster gun. The design of this carriage shall be identical to the main carriage, and it shall also extend 4 feet from the edge of the platform.

Each carriage slide shall be equipped with a hydraulic cylinder for moving the carriage to any point within it's operating range. The cylinder shall be double-action, controlled by a power steering control, and the steering wheel shall be conveniently located for the operator.

Hydraulic power for the operation shall be supplied by a high-pressure hydraulic pump driven by the auxiliary engine.

Stacked body, quick acting solenoid valves with a manual override feature shall be mounted on each carriage. Valves shall be equipped with balanced spool designed to minimize back pressure or restriction in exhaust. The valves shall be of a one piece aluminum design body.

SECTION 8
AIR COMPRESSOR

AIR COMPRESSOR:

The air compressor shall be an Ingersoll-Rand unit (or approved equal) capable of supplying at least 185 cubic feet of free air per minute at 100 psi.

All containers shall be A.S.M.E. approved for 100 psi working pressure. All necessary safety valves, piping and fittings shall be included.

The compressor engine shall be diesel powered, liquid-cooled, four-cycle, three cylinder, overhead valve construction, heavy duty industrial type. It shall include as standard equipment: a fin-tube type radiator, lubricating oil filter, 12 volt electrical system, pushbutton starting, and recommended air filter to be shared with the compressor air intake. The air compressor engine and chassis engine shall have a common fuel tank.

A heavy duty, "largest sized" desiccant filter, capable of passing all air from the compressor, shall be installed in the air line after a finned after-cooler extending from the compressor to the air control center.

A secondary heavy duty, self-evacuating oil and moisture remover shall be installed in the air line prior to entering the air control center.

A common skid base shall be provided under the engine and compressor so they may be handled and mounted as a package unit. A complete cover with hinged or sliding access panels shall be supplied for weather protection.

The operating control panel shall be located at the end of the compressor unit and the unit mounted so that it is at the curb side of the vehicle and include, in addition to operating controls, gauges showing oil and air pressures, water temperature, and ammeter and an electric hour meter.

The unit shall be furnished with the following accessory items as a standard part of the package: hour meter, oil level gauge, automatic moisture trap for controls, automatic blowdown valve, minimum pressure valve and a hydraulic pump.

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SECTION 9
GUIDANCE SYSTEM

GUIDANCE: HoloVision™ Holographic Sight

The truck shall be equipped with a holographic diffraction "Heads-Up" type sighting system. The system shall be mounted inside the cab to allow the operator to adjust the sight unaided by another person.

The sight shall consist of a laser projected on an enclosed three-layer, shatterproof laminate window to prevent laser radiation from escaping from the housing.

The sight shall be waterproof (submersible), shock resistant & fog proof. It shall operate in the range of –20 to 150°F.

The sight shall have 20 levels of adjustable brightness control and have the ability to be used in all light levels without being washed out or obscured. In the holography, all the information required to reconstruct the reticule image is recorded everywhere in the "Heads-Up" display window. If the sight window is obstructed by dirt/film/smudges, water, etc, the sight remains fully operational, with the point of aim being maintained.

The sight shall be battery operated and have a programmable auto shutdown feature. (A12 volt hardwired option shall be available.)

The sight shall be provided with a moveable mount to accommodate all height of operator. The mount shall have a three axis rotation and be movable from side to side of the vehicle.

The sight and mount shall be detachable and a portable storage unit shall be provided.

SECTION 10
TRAFFIC CONTROL LIGHTING

LIGHT BAR:

The striping unit shall be equipped with a cab mounted light bar. This light bar shall be a minimum of 48 inches long and have at least four amber strobe lights.

STROBE LIGHTS:

Two (2) amber strobe lights shall be mounted on the equipment platform at the rear of the equipment area.

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SECTION 11
CONTROL AND ELECTRICAL SYSTEM

CONTROL CENTER:

A control center shall be provided. This shall consist of an integral sheet metal covered framework providing space for control panel, electrical controls, spray equipment connections, heater thermostat control, and any other auxiliary parts required by the spray equipment.

The control panel shall be mounted in an inclined position so that it can be observed from either operator's position and shall have an appropriate sun shield installed over all digital readout equipment to reduce sun glare and facilitate reading of settings. This control panel shall have mounted on it, all the necessary regulators, gauges, valves, switches, and indicators required for operation of the striping equipment. All parts shall be of the panel type and located behind the panel if at all possible. An easily removable back plate with latches shall allow access to the interior for service. Both a 110 psi safety valve and a condensate drain shall be located on the panel air manifold. All of the gauges shall be of the liquid-filled type.

The spray equipment shall be electrically controlled by means of toggle switches and solenoid valves. The switches shall be located in two separate control panels within easy reach of the rear equipment operators. The switch sections shall also house additional switches and indicator lights for the skipline mechanism control.
All line pattern combinations, skipline mechanism actuation, and skipline mechanism reset shall be controlled by toggle switches. Pre-selected combinations shall be obtained by activating only on switch that also simultaneously actuates or resets the skipline mechanism. One toggle switch shall be an "OFF" switch connected in such a way that when activated, it will turn off and cancel any of the above selected patterns, as well as automatically reset the skipline mechanism to a ready position. Provision shall be made so that any glass sphere guns may be controlled from the same system for simultaneous spray gun and glass gun operation.

The entire switch assembly shall be removable from the control panel for servicing and attached by a pin connector to an electrical junction box in which all electrical interconnections shall be made.

All electrical wiring shall be enclosed in conduit type protective case. Any wires passing through the deck shall have grommets around them.
All electrical controls shall be 12 volt power only.

Two operator seats shall be mounted on the vehicle platform. The left seat shall be Bostrom "Air-Ride" Talladega 915 or equal. Each seat shall be fitted with foam rubber cushions and backs. Covering shall be weather resistant plastic. Each seat shall be fitted with a seat belt in accordance with S.A.E. and Federal Standards.

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INTERCOM SYSTEM:

The unit shall have a MASTER STATION David Clark U3800 or approved equal.

The unit shall have a 12 VDC power source in-truck electrical system. The unit shall contain controls, power input and remote outputs, plus two (2) headset jacks. The unit shall be of rugged heavy gauge polycarbonate (-80 to ± 212 F) housing with all controls, connectors and covers weather-tight. The unit shall have less than 300 milliamps current draw. The intercom system shall be for a four (4) station intercom system.
The remote head set station shall be a David Clark U3802 and U3801 via C38 Jumper Cord, or approved equal and have a headset jack with listen volume control. The remote headset shall have same housing and weather tight design as MASTER STATION.

Two (2) dual ear headsets for the rear operators shall be over-the-head style to accommodate safety hats or helmets, they shall provide maximum noise attenuation for hearing protection and clear, isolated reception M-1A noise canceling microphone that provides clear transmission at normal voice levels. A single ear over-the-head style headset shall have microphone on/off switch that allows hands free communication for the driver. The headsets shall have a five foot (extended) coil cord with weather protected PJ051 plug.

The unit shall have two conductor shielded power cord, twenty feet. Connects David Clark U3800 or approved equal to power source. One end of the power cord shall be stripped and tinned for connection to truck battery or fuse rack.

The unit shall have one (1) David Clark (C38-12 jumper cord and one (1) C38-75 jumper cord or approved equal. Jumper cords shall have four conductor shielded with MS screw-on (pin) connectors. Connects MASTER STATION and MODULES.

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SECTION 12
SKIPLINE SYSTEM

SKIPLINE SYSTEM CONTROLLER: M-B Model 3001, (no exceptions)

System shall allow remote electrical control of the paint and bead spray guns and permit the application of various pre-selected line patterns.

Controller shall be plug-in design, panel mounted.
Controller shall be microprocessor based.

Controller shall retain programmed and accumulated information even in emergency mode or the when the unit is removed.

System shall be 12 volt DC

The time pulse logic shall be from direct source only, pulleys, belts, chains, or 5th wheel assemblies shall not be accepted.

Calibration to the vehicle shall be performed electronically through the processor.

The unit shall be a membrane touch panel, toggle switch system not acceptable.

The unit shall have accuracy to within 1/10 of a foot at speeds up to 40 MPH.

Unit shall be adjustable from 0.1 Ft. to 999.9 Ft paint and cycle lengths variations.
The skip/cycle lengths shall be displayed while modifying or selecting, but shall not be activated until the information is "entered".

There shall be provisions for:
1. Reset to zero or instant start of stripe for full cycle lengths.
2. Instant off
3. Storage of two skip cycle programs, selected through toggle switches.
4. Configured to being the painting cycle with the paint line or the skip interval.
5. Move the stripe/cycle function ahead or back while the vehicle is in motion.

The liquid crystal display shall have :
1. 20 characters minimum with a minimum height of ½"
2. A maximum of two items of information displayed at a time
3. A default display: vehicle speed to nearest 0.1 MPH, time
4. A one touch feature to display the various required items (vehicle speed, skip/cycle length, footage counters, etc.).
5. A display intensity variable to accommodate for changes in ambient light conditions.
6. An odometer function for total distance traveled.
7. Shall accumulate and display upon command, the total length in feet of paint applied by each individual paint gun, and the total length of feet of paint applied by all guns.

The unit shall have individual controls for up to 12 paint and bead guns, coordinated through toggle switch hand boxes.

The unit shall provide delay for glass bead application for complete coverage of paint line.

SECTION 13
TECHNICAL SERVICES

TECHNICAL INFORMATION:

For the purpose of determining the degree of standardization for units, the availability of replacement parts, and whether or not components meet the specifications, the bidder will provide parts manuals, wiring diagrams, and detailed specifications on the following components:

A. Chassis
B. Heat Exchangers
C. Paint Handling Equipment
D. Guidance System
E. Valves
F. Pressure Bead Tank
G. Paint Guns
H. Compressor
I. Glass Sphere Guns
J. Skipline Mechanism
K. Intercom
L. Hoses
M. Solvent Tank
N. Carriage Assembly

A computer generated engineer's detailed layout with weight distribution shall be provided with the bid submittal showing the location of paint equipment, air and glass supply equipment, and other equipment necessary for the successful construction of the traffic paint striping machine.

Failure to supply information as requested for the previous items with the bid, will cause the bid to be irregular and it will not be considered.

TECHNICAL MANUALS:

The successful bidder shall supply two sets of operator's manuals, service manuals, parts books, wiring diagrams and applicable technical information for each machine purchased. These manuals shall be in digital format (PDF on CD), if available.

TECHNICAL SERVICES:

The services of at least one competent technician, trained in the use and operation of the striping machine, shall be furnished for a period of four consecutive days for each machine purchased to instruct the purchaser's personnel in the use, operation and maintenance of the machine on acceptance.

ROANOKE

PRE-DELIVERY CONFERENCE:

A pre-delivery visit at the vendor's manufacturing location for three (3) employees to inspect and approve the completed unit. This visit will be for a minimum of two days, including travel, and one overnight stay at the full expense of the vendor and at no cost to the agency.

SECTION 14
OPTIONAL COMPONENTS

DUAL STEERING:

The chassis shall be equipped with dual controls. They shall consist of a steering column with steering wheel, turn signals, accelerator and brake pedal. The ignition switch, gear selector and emergency brake control shall be located in the middle of the two driver positions, easily accessible from either the left or right driver position. The dual steering shall be accomplished through a gear box mounted on each steering column connected with a drive shaft wands two universal joints. For over road transport, it shall be possible to easily disconnect the right steering column without removing the connecting shaft.